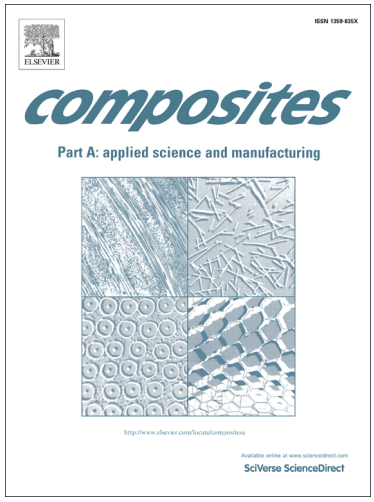

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TITLE:

INVESTIGATION OF INJECTION MOULDED POLY(LACTIC ACID) REINFORCED WITH LONG BASALT FIBRES

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1. Abstract

In this paper long basalt fibre reinforced Poly(Lactic Acid) (PLA) composites were prepared and analysed. Continuous basalt roving was coated with PLA by using continuous extrusion coating technology and a special die. The continuous basalt roving coated with PLA was cut into 10 mm long pellets, which were injection moulded. The properties of the long fibre reinforced composites were compared to chopped (short) basalt fibre reinforced PLA composites produced by using the conventional dry mixing, extrusion and injection moulding method. The mechanical properties of the long basalt fibre reinforced PLA was found to be superior to short basalt fibre reinforced PLA. Fibre length analysis revealed that the remaining average fibre length highly increased, while electron microscopy demonstrated that there is very strong adhesion between the phases. Finally it was found that the long basalt fibres also have nucleating ability, however, not as efficient as short basalt fibres.

2. Keywords

Mechanical properties (B), injection moulding (E), extrusion (E), Long basalt fibre composite (nominated new keyword)